

WHAT IS CLAIMED IS:

1. A method of presenting a changing combustor condition comprising:

a. sensing the combustor condition using a sensor array in a gas path of the combustor;

b. generating data from the sensor array representative of the combustor condition at a plurality of positions in the gas path;

c. transmitting the generated data to a computer system proximate to a control interface for the combustor;

d. generating a graphical representation of the showing combustor conditions in the gas path, and

e. displaying the graphical representation on the computer system.

2. A method as in claim 1 wherein the graphical representation is a contour plot.

3. A method as in claim 1 wherein the graphical representation is a contour plot which is updated periodically to provide a real-time representation to the display.

4. A method as in claim 1 wherein the graphical representation is a contour plot which is updated at least every ten seconds.

5. A method as in claim 1 wherein the graphical representation is a contour plot which is updated at least every second.

6. A method as in claim 1 wherein the graphical representation is a contour plot which is updated periodically, and said method further comprises a calculation of an average sensor measurement that is displayed in conjunction with the graphical representation.

7. A method as in claim 1 wherein the data is transmitted periodically in near real-time.

8. A method as in claim 1 wherein the data is transmitted through a network connection.

9. A method as in claim 1 wherein the combustor condition is selected from a group consisting of CO, O₂ and temperature.

10. A method of presenting a changing combustor condition comprising:

a. sensing the combustor condition in near real time using a sensor array in a gas path of the combustor;

b. generating data from the sensor array representative of the combustor condition at a plurality of positions in the gas path;

c. transmitting the generated data in near real-time to a computer system, where the computer system is

at a location proximate to a control interface for the boiler;

d. generating a graphical representation of the near real time showing combustor conditions in the gas path, and

e. displaying the graphical representation in near real time on the computer system.

11. A method as in claim 10 wherein the graphical representation is a contour plot.

12. A method as in claim 10 wherein the graphical representation is a contour plot which is updated periodically.

13. A method as in claim 10 wherein the graphical representation is a contour plot which is updated at least every ten seconds.

14. A method as in claim 10 wherein the graphical representation is a contour plot which is updated at least every second.

15. A method as in claim 10 wherein the graphical representation is a contour plot which is updated periodically, and said method further comprises a calculation of an average sensor measurement that is displayed in conjunction with the graphical representation.

16. A method as in claim 10 wherein the data is transmitted through a network connection.

17. A method as in claim 10 wherein the combustor condition is selected from a group consisting of CO, O₂ and temperature.

18. A system for collecting and presenting a changing combustor condition comprising:

a sensor grid located in the combustion, said grid sensing the combustor condition in real time using a sensor array in a gas path of the combustor and generating data representative of the combustor condition at a plurality of positions in the gas path;

a network for communicating electronic data;

a computer system coupled to the network and further comprising a controller and a display, wherein said controller receives the generated data and generates a graphical representation of the real time showing combustor conditions in the gas path, and said graphical representation is presented on said display.

19. A system as in claim 18 wherein said computer system is proximate to controls for said combustion system.

20. A system as in claim 18 wherein said graphical representation is a contour plot.

21. A method to adjust a boiler having a flue gas duct comprising:

a. sensing flue gas emissions in the gas duct with a plurality of emission sensors arranged in an array;

b. generating a multidimensional graphical depiction of the flue gas emissions by plotting sensor data captured from the emission sensor;

c. adjusting the boiler to modify the distribution of flue gases in the gas duct;

d. generating a subsequent multidimensional graphical depiction of the flue gas emissions by plotting sensor data captured subsequent to the boiler adjustment, and

e. repeating steps (c) and (d) until the graphical depiction displays an acceptable plot of flue gas emissions.

22. A method as in claim 21 wherein the acceptable plot is a substantially smooth plot with minimized gradients in the flue gas emissions.

23. A method as in claim 21 wherein a mobile computer generates the multidimensional graphical depiction of the flue gas emissions by plotting the sensor data captured from the emission sensor.